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FEEDING AND CUTTING MECHANISM FOR WAXED PAPER

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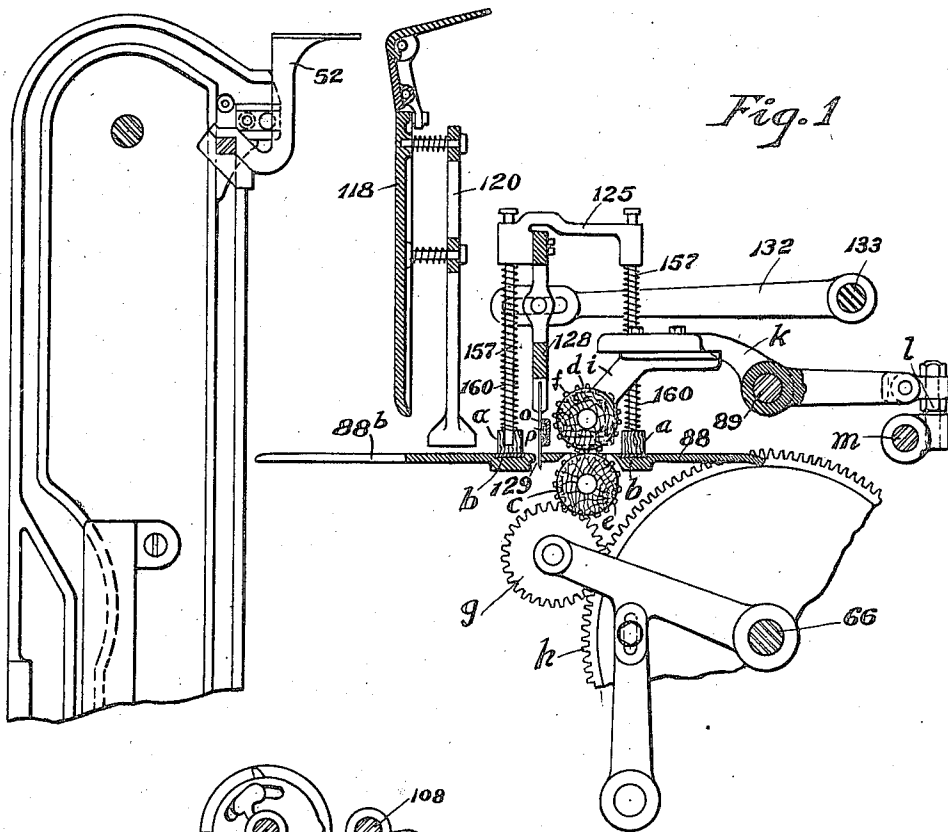
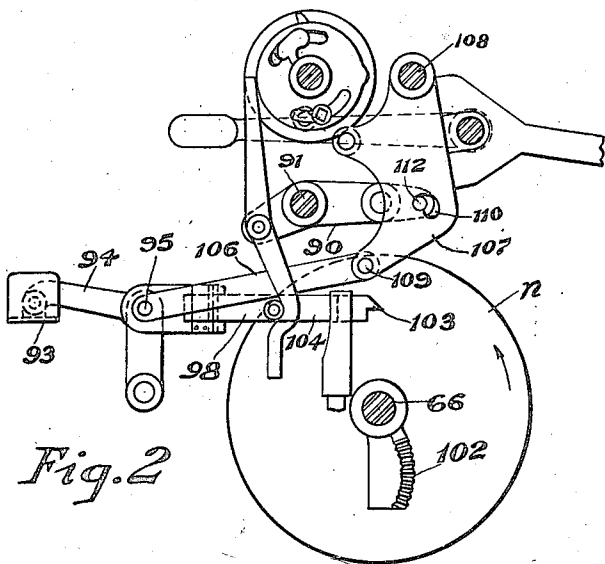
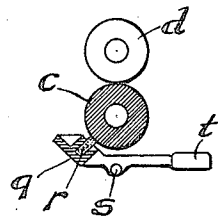


Fig. 3

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FEEDING AND CUTTING MECHANISM FOR WAXED PAPER.

Application filed May 4, 1921. Serial No. 466,786.

To all whom it may concern:

Be it known that we, HENRI A. SÉVIGNÉ and FRANK K. ARNOLD, citizens of the United States, and residents, respectively, of Winthrop, county of Suffolk, and State of Massachusetts, and of Nashua, county of Hillsborough, and State of New Hampshire, have invented certain new and useful Improvements in Feeding and Cutting Mechanism for Waxed Paper, of which the following is a specification.

This invention relates to machines of that type employed for wrapping articles such as loaves of bread. A machine of this general character is illustrated in Letters Patent No. 1,253,636, granted to us January 15, 1918. As stated in that patent the machine was adapted to use waterproof paper of a character known as "dry" paper, or slightly waxed, and said machine included means for applying sealing material such as melted paraffin to portions of the wrappers.

The machine of the patent referred to operates to push a strip of paper over a bed and under a knife which intermittently cuts the strip into sections. When the paper is of a "dry" or lightly waxed character no difficulty is experienced with the proper conversion of the strip into sections. For some purposes we have found it desirable to employ what is known as self-sealing or heavy-waxed paper. With such paper used in the machine of the patent the employment of means for applying sealing material to the wrapper can well be dispensed with. We have found however that the presence of the extra coating of wax on the paper interferes somewhat with the proper feeding and cutting of the strip into sections. One reason is that some of the heavy coating of wax is pressed or rubbed off by the rolls, presser feet and knife and accumulates thereon so as to interfere with their action.

An important feature of the present invention is the provision of means for converting a strip of heavy-waxed or self-sealing paper into sections without transferring wax onto said means.

As mentioned above, the machine of the patent pushes the paper over a bed. The area of the bed is such that the friction between it and the heavy coating of wax some-

times acts to retard forward movement and cause that portion of the paper nearest the pushing rolls to buckle up so that the paper is not properly advanced to have the right length of section cut off by the knife. This tendency is increased by the presser feet which bear intermittently on the paper between the knife and the pushing rolls. Sometimes, also, the paper has a tendency to be pushed askew.

Another feature of the present invention therefore is to provide a machine of the character described with means for pulling instead of pushing the paper over the bed and past everything which might have a tendency to retard proper advance of the paper.

As the mechanism forming our present invention might be employed in any machine designed to cut sections from a strip of heavy-waxed paper, although especially intended for use in bread wrapping machines, the accompanying drawings do not illustrate any particular means for utilizing the cut sections.

In the drawings:

Figure 1 is a longitudinal sectional view of a portion of a machine embodying our present improvements.

Figure 2 is a sectional view illustrating means employed for causing the rolls which pull the paper to act intermittently.

Figure 3 is a detail view illustrating a modification hereinafter referred to.

For convenience in the explanation of the embodiment of the invention illustrated, numerals are employed for some parts and letters for other parts. The numerals indicate those parts which are or may be the same as those which are similarly indicated in the Patent 1,253,636 before referred to. In some aspects however the mechanism indicated by numerals may be like that shown in our Letters Patent No. 1,412,754, April 11, 1922.

In the embodiment of the invention illustrated, referring particularly to Figure 1, the machine has a table or bed 88 a portion of which is slotted as indicated at 88^b to permit the passage of loaf-lifting fingers 52 which elevate loaves through a vertical passageway or chute one wall of which is indicated at 118, said wall being yieldingly carried by a fixed bracket 120.

A strip of paper from a suitable source of supply is intermittently advanced over the bed by means presently described and is cut into successive sections by a knife 129 carried by a knife bar 128 which is vertically actuated by arms 132 of a rock shaft 133. Connected to the knife bar and vertically movable with it is a casting 125 in which rods 157 are mounted to slide, springs 160 being employed to cause the presser feet at the lower ends of the rods to bear yieldingly on the paper on the bed while the knife is cutting the paper.

In the present machine the presser feet *a a* carried by the rods 157 are blocks of wood treated as hereinafter described to render them incapable of removing wax from the paper when they rise after bearing on the paper. In Figure 1 the feet *a a* are shown as in the position which they occupy while the knife is cutting the paper. It is to be understood that the said feet, as well as the knife, are in a higher position during the feed of the strip.

Mounted in recesses in the bed 88 below the feet *a a* are disks or strips of wood *b b* which are treated similarly to the feet so that the wax on the paper will not adhere thereto while being fed over the bed.

To pull the paper over the bed 88 we employ rolls *c d* which are located close to the knife and between it and the rear pressers *a*. This relative positioning of the members just described is for the purpose of so limiting the area of bed support for the paper between the feed rolls and the knife that said paper, although heavily coated and therefore liable to shift askew, will have no such distance to travel as to have an opportunity to move in other than a straight direction. Said rolls are preferably of wood treated the same as the presser feet. We have found in practice that when wood is soaked in paraffin oil, no wax from the paper will adhere thereto although the paper is subjected to considerable pressure between the rolls and between the presser feet and strips *b*.

The rolls are driven continuously by means of suitable intermeshing pinions *e, f*, a pinion *g*, and a gear *h* carried by shaft 66, the intermittent action of the rolls on the paper being obtained by raising the roll *d* from the roll *c* while the knife is acting and then lowering the upper roll while the knife and presser feet are raised. We will now describe the means illustrated for raising and lowering the roll *d*.

The roll *d* is mounted in bearings carried by arms *i* of a frame *k* having an adjustable connection *l* with a pivot rod *m*. A rod 89 extends through the frame. By raising and lowering the rod 89 the frame is oscillated on its pivot *m* to raise and lower the upper feed roll *d*.

So far as the subject matter of this application is concerned, the means for effecting intermittent feed of the strip of paper might be of any suitable construction. The machine in which we have embodied the present improvements is similar to those explained in the patents above referred to. In the accompanying drawings Figure 2 is similar to Figure 7 of the Patent 1,253,636. In said Figure 2, arms 90 of a rock shaft 91 carry the rod 89, and one of the arms 90 has a pin 112 which enters a cam slot 110 in a plate 107 pivotally supported at 108. A link 106 is pivoted at 109 to the lower end of the plate 107 and at its other end is pivoted at 95 to a jointed lever 94, 98. Said lever is mounted to have an endwise as well as tilting movement. At its outer end it has a feeler 93 under which loaves pass to be wrapped as explained in the patent referred to, and at its inner end it has a tooth 103 adapted to be engaged by a toothed rib 102 carried by a disk *n* secured to shaft 66. When the rib 102 engages the toothed tip 103 and moves the lever endwise, the link 106 transmits movement to the plate 107 so that the cam slot 110 of the latter permits the arms 90 to lower the rod 89 which, in turn, lowers the roll *d* and causes the strip of paper to be advanced. The swinging of the plate 107 in the other direction to cause its cam slot to effect lifting of the rod 89 is effected by the mechanism shown in Figure 2 but not necessary to describe herein as it is fully explained in the patent referred to. As has been stated, any mechanism for effecting alternate contact and separation of the rolls *d e* may be substituted for that indicated in the present drawings.

We have found that when heavy waxed paper is employed, there is a tendency toward an accumulation of wax on the knife, especially on that side of it toward the feed rolls or that side which is flush or in alignment with the extreme cutting edge. To prevent such an accumulation we keep that side or surface lubricated, as with paraffin oil. A convenient way has been in practice, to mount a stationary bar *o* having a horizontal groove or chamber in which an oil soaked filling *p* is confined in such position that the knife, as it moves up and down, rubs over said filling.

We do not limit ourselves to the employment of rolls *c d* of oil-soaked wood. As indicated in Figure 3, said rolls may be metal having means for lubricating the peripheral surface of one or both of them, such means comprising a trough *q* having a filling *r* of oil-soaked material, said trough being pivoted at *s* and having a weighted arm *t* so as to hold the filling *r* against the roll *c*. A similar trough might be arranged in juxtaposition to the upper roll *d*, but we have found that sufficient oil is transmitted

from roll *c* to roll *d* to prevent wax from leaving the paper and adhering to said roll *d*.

Whether the feed rolls are of oil-soaked wood, or have oil supplied thereto as above described, the amount of oil on the peripheries of the rolls is so limited as not to interfere with the function of the rolls as feeders although sufficient to prevent them from taking wax from the paper.

When the rolls consist of wood as described in connection with Figure 1, the bodies of oil-soaked wood furnish the means for lubricating the peripheries of the rolls.

As illustrated in Figure 1, the lower roll *c* is so positioned relatively to the aperture in the bed 88 above it, that the upper portion of the periphery of the roll is substantially flush with the upper surface of the bed. And the aperture in the bed is of such limited area that the edge thereof onto which the paper passes causes the paper to be peeled off from the roll without sticking thereto, even if the lubricant is exhausted or omitted.

Having now described our invention, we claim:

1. In a machine for feeding and cutting waxed paper, a bed over which the paper travels while being fed, upper and lower members between which the paper is moved when travelling over the bed, the lower member being in position to support the paper and the upper member being movable to intermittently coact with the lower member to grip the paper, the said lower member being provided with means for resisting tendency of the coating of the paper to adhere thereto resulting from the gripping action of the upper member thereon.

2. In mechanism for converting a strip of waxed paper into sections, a cutter, means for feeding the strip to position to be operated upon by the cutter, and means for applying a lubricant directly to the cutter to prevent adhesion of wax thereto.

3. In mechanism for converting a strip of waxed paper into sections, a bed, a cutter, means for intermittently advancing the strip over the bed to position to be operated upon

by the cutter, and intermittently operative lubricant-carrying pressers for holding the paper during the operation of the cutter.

4. In mechanism for converting a strip of waxed paper into sections, a bed, a cutter, means for intermittently advancing the strip over the bed to position to be operated upon by the cutter, and intermittently operative lubricant-carrying pressers for holding the paper during the operation of the cutter, the bed having lubricant carrying areas below said pressers.

5. Mechanism for converting a strip of waxed paper into sections, comprising a bed, intermittently operative lubricant-carrying rolls for advancing the strip over the bed, a cutter, means for lubricating the cutter, and intermittently operative lubricant-carrying pressers for holding the paper during the operation of the cutter.

6. In a machine for feeding and cutting waxed paper, a bed over which the paper is fed, said bed having an aperture, a roll located in said aperture with its upper peripheral portion substantially flush with the upper surface of the bed, and an upper member movable toward and from the roll.

7. In mechanism for converting a strip of waxed paper into sections, a bed, a cutter, rolls in close proximity to the cutter to draw the strip over the bed to feed it to position to be operated upon by the cutter, means for lubricating that surface of the cutter which is toward said rolls, and means for intermittently pressing the paper on that portion of the bed over which the paper is drawn by the rolls.

8. Mechanism for converting a strip of waxed paper into sections, comprising a bed, a cutter and pressing means intermittently movable perpendicular to the bed, and intermittently operative rolls for drawing the paper over the bed toward the cutter, said rolls being located close to the cutter and between it and the said pressing means.

In testimony whereof we have affixed our signatures.

HENRI A. SÉVIGNÉ.
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